

STUDIES IN THE TIPHIIDAE, XII.¹ A NEW GENUS OF
METHOCHINAE WITH NOTES ON THE SUBGENERA OF
METHOCHA LATREILLE (HYMENOPTERA ACULEATA)

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Abstract.—A key is presented to the genera and subgenera of Methochinae. Synonymical notes are included for the subgenera of *Methocha* Latreille, and the new genus *Karlissa* is described with *Methoca* (!) *rugosa* Cameron, 1897, as the type-species. *Stenomethoca* Hamann, 1960, is synonymized under *Methocha* subg. *Dryinopsis* Brues, 1910.

This contribution is published in advance of a monographic treatment of the Ceylonese Tiphiidae to provide part of the higher classification to be used in that work. A key is included for differentiation of the genera and subgenera of Methochinae, synonymies are included for the various genus-group names proposed previously, and the new genus *Karlissa* is described for the unique specimen of *Methoca* (!) *rugosa* Cameron.

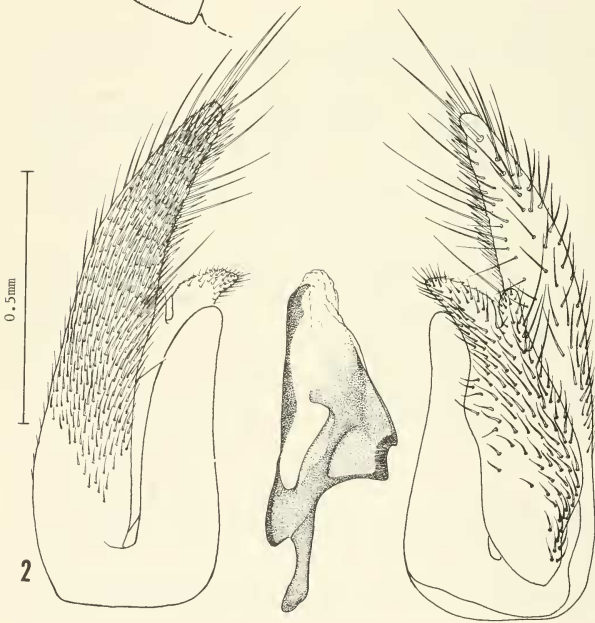
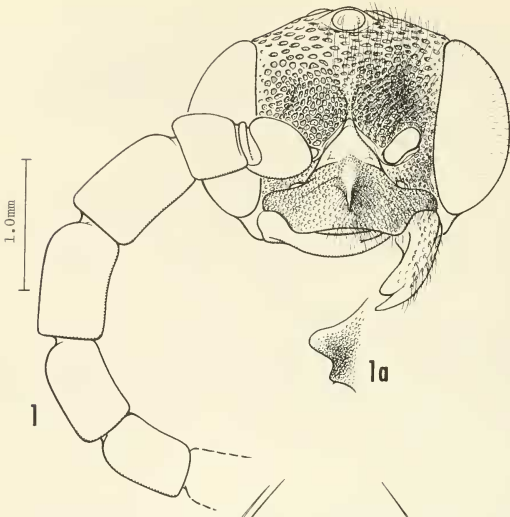
KEY TO THE GENERA AND SUBGENERA OF METHOCHINAE²

1. Females; wingless and antlike in appearance; abdomen 6-segmented; antenna 12-segmented; *Methocha* Latreille 2
- Males; winged, slender, much larger than females; abdomen 7-segmented, the last sternum a recurved aculeus; antenna 13-segmented . 4
2. Scutum, viewed in profile, convex, not depressed below level of scutellum; antenna not clavate toward apex; viewed from above the front above antennae evenly convex between compound eyes, the latter not noticeably enlarged and bulging from sides of head; chiefly Holarctic, but with a few Neotropical and Oriental representatives

¹ Part XI of this series was published in Proc. Entomol. Soc. Wash. 78:361-368, 10 figs.

² *Karlissa*, new genus, is known only from the male. It is presumed that the unknown female will be wingless and antlike as in *Methocha*. The male of *Karlissa* is much more coarsely sculptured and rugose than *Methoca* males, and the female may differ similarly from *Methocha* females which are usually quite delicately sculptured.

- *Methocha* subg. *Methocha* Latreille
- Scutum, viewed in profile, flat; viewed from above the front concave between inner margin of compound eye and frontal protuberance which is occasionally lacking; compound eyes noticeably enlarged and bulging from sides of head 3
 - 3. Scutum, viewed in profile, noticeably depressed below level of scutellum; antenna clavate toward apex; Oriental species
..... *Methocha* subg. *Dryinopsis* Brues
 - Scutum, viewed in profile, not depressed below scutellum; antenna not clavate; Ethiopian species *Methocha* subg. *Andreus* Ashmead
 - 4. Flagellar segments more strongly flattened, shorter, 1st flagellar segment as long as wide, the 2nd through 5th each more than $\frac{1}{2}$ as wide as long; pronotum elongate, median length of dorsum 0.8 times that of scutum; metasternum at apex with pair of ligulate, narrowly separated processes, each overlying inner ventral angle of hind coxa; posterior surface of propodeum abruptly declivous from dorsal surface which has a strong transverse carina at apex; genitalia (Fig. 2), paramere slender, dorsal and ventral margins tapering gradually to apex, volsella with digitus *Karlissa* Krombein, new genus
 - Flagellar segments not so flattened, longer, 1st flagellar segment 1.5 or more times as long as wide, succeeding segments twice or more as long as wide; pronotum shorter, median length of dorsum not more than $\frac{1}{2}$ the length of scutum; metasternum not so armed at apex, at most with a pair of small tubercles; dorsal surface of propodeum rounding gradually into posterior surface, not separated from it by a strong transverse carina; genitalia (Figs. 3-5), paramere stouter, ventral margin rounded out or emarginate in middle; *Methocha* Latreille 5
 - 5. Mesopleuron with a median ovate, impressed, densely haired area, anteriorly and above with submarginal grooves; carina on upper inner surface of hind coxa expanded into a lamella at base; clypeus with a median tuberculate process; ocelli in an obtuse triangle; malar space usually well-developed, more or less quadrate; parapsides and notauli present, the latter short; genitalia (Fig. 3), ventral margin of paramere deeply emarginate in middle, volsella with digitus; chiefly Holarctic, but with a few Neotropical and Oriental representatives
..... *Methocha* subg. *Methocha* Latreille
 - Mesopleuron without such an impressed area; ocelli usually arranged in an equilateral or acute triangle; malar space usually very short, linear, rarely elongate; parapsides present, notauli absent; genitalia (Figs. 4-5), ventral margin of paramere rounded out in middle 6
 - 6. Mesopleuron always with an anterior submarginal groove, occasion-



- ally with a superior groove also; front without a median keel above antennal insertions; clypeus with a median process; genitalia (Fig. 4), volsella with digitus; Oriental Species *Methocha* subg. *Dryinopsis* Brues
- Mesopleuron sometimes with an anterior groove, dorsal groove absent; front with a short median keel above antennal insertions; clypeus without a median process; genitalia (Fig. 5), volsella without digitus; Ethiopian species *Methocha* subg. *Andreas* Ashmead

Methocha subgenus *Methocha* Latreille

Fig. 3

Methocha Latreille, 1804:179. Type-species: *Mutilla articulata* Latreille. Monotypic.

Methoca (!) Latreille, 1805:268. Emendation.

Tengyra Latreille, 1809:115. Type-species: *Tengyra Sanvitali* Latreille. Monotypic.

Spinolia Costa, 1858:21. Type-species: *Spinolia italica* Costa. Monotypic

Most species of the typical subgenus occur in the Holarctic Region, but a few occur in the Neotropical and Oriental Regions.

Methocha subgenus *Dryinopsis* Brues

Fig. 4

Dryinopsis Brues, 1910:16. Type-species: *Dryinopsis simplicipes* Brues. Monotypic.

[*Methocha*] subgenus *Stenomethoca* Hamann, 1960:35. NEW SYNONYMY. Type-species: [*Methocha*] (*Stenomethoca*) *nigra* Hamann. Monotypic.

Brues originally placed his genus in the Dryinidae. Later, he and Melander (1932:500) assigned it to the Methocidae.

Hamann (1960) published a paper, "Stenomethoca subgen. nov., nigra spec. nov." Nowhere does he assign *Stenomethoca* to a genus, but several species of *Methoca* (!) are mentioned in the text, so the presumption is that he intended it as a subgenus of *Methocha*. He did not make a type-designation, but there is type-fixation inasmuch as *nigra* Hamann is the sole included species.

It is quite possible that *nigra* Hamann is a junior synonym of *simplicipes*

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Figs. 1, 2. *Karlissa rugosa*. Fig. 1, frontal view of head, 1a, clypeus in profile. Fig. 2, male genitalia, cardo removed; exterior lateral aspect at left, aedeagus in center, internal lateral aspect at right.

Brues. Hamann's specimen came from West Kalimantan, Borneo, and Brues' specimen was from British North Borneo.

All of the known species come from the Oriental Region.

Methocha subgenus *Andreus* Ashmead

Fig. 5

Andreus Ashmead, 1903:156. Type-species: *Andreus abbottii* Ashmead. Original designation and monotypic.

Ashmead's name was not used by subsequent workers (e.g., Turner, Arnold) who placed all of the African species in *Methoca* (sic). So far as I can judge from the few species available for study and from a perusal of the published descriptions and illustrations, all of the Ethiopian species are referable to this subgenus. I have seen no specimens of *Andreus* from outside the Ethiopian Zoological Region.

Andreus Ashmead is not preoccupied by *Andreus* Vosmaer (1887:246), an evident lapsus for *Adreus* Gray, 1867. Vosmaer spells it *Adreus* correctly in the index and gives no indication in the text that he is proposing an emendation.

*Karlissa*³ Krombein, NEW GENUS

A perusal of Cameron's description and consideration of Turner's (1908) remarks convinced me some years ago that *Methocha rugosa* Cameron, 1897, was referable to a group of Oriental and Ethiopian myzinine wasps which I described subsequently as *Hylomesa*, 1968. However, when I first studied Cameron's holotype at Oxford University in 1965, I recognized immediately that it belonged to the Methochinae, not the Myzininae, and that it represented a most unusual new genus.

Karlissa is known only from the male. It is distinguished from *Methocha* males by the following combination of characters: Flagellar segments more strongly flattened, comparatively shorter; pronotum more elongate, much of disk with close, transverse rugulae; mesopleuron below with a deeply impressed, narrow, longitudinal, densely setose fossa; metasternum at apex with a pair of narrowly separated, ligulate processes; and lateral and posterior surfaces of propodeum abruptly declivous from the dorsal surface which is margined posteriorly by a strong carina.

The following generic diagnosis is based on the holotype of *Methocha rugosa* Cameron.

Male.—Maxillary palpus 6-segmented, labial palpus 4-segmented; mandible bidentate at apex, the lower tooth longer; clypeus with a median,

³ I take pleasure in naming this genus for my youngest daughter. The gender is feminine.



Figs. 3-5. Male genitalia, *Methocha* spp., cardo removed, exterior lateral aspect at left, aedeagus in center, internal lateral aspect at right. Fig. 3, *Methocha (Methocha)* sp., Sri Lanka. Fig. 4, *Methocha (Dryinopsis)* sp., Sri Lanka. Fig. 5, *Methocha (Andreus) mosotuana* Peringuey, Lesotho.

compressed nasiform process; antenna probably 13-segmented (missing beyond 5th flagellar segment), the basal flagellar segments short, strongly compressed, 1st flagellar segment as wide as long, the 2nd through 5th each more than $\frac{1}{2}$ as wide as long; eye oval, with fine, short setae, inner margin slightly concave above; ocelli 3, not enlarged.

Pronotum very long, along midline 0.8 times as long as scutum, dorsally margined anteriorly by a strong carina, much of the disk transversely rugose; scutum with parapsides but lacking notauli; mesopleuron margined anteriorly and above by a strong carina, on lower third with a deeply impressed, narrow, longitudinal, densely haired fossa; mesosternum with a strong carina before each mid coxa; metasternum at apex with a pair of narrowly separated ligulate processes, each overlying the inner ventral angle of hind coxa; propodeum with sides and posterior surface abruptly declivous, dorsal surface with a strong posterior carina.

Wings badly matted together, but venation apparently as in *Methocha*.

Legs slender, but femora and tibiae heavier than in *Methocha*; formula of tibial calcaria 1-2-2, the outer, shorter spur of hind tibia slender, black and curved on apical $\frac{1}{2}$; (fore missing), mid and hind tarsal claws cleft, the inner ray blunt and larger; hind coxa with dorsal carina along inner margin not raised into a lamella.

Abdomen not petiolate, 2nd through 6th terga and 3rd through 6th sterna each with a deep, curved subbasal groove bearing close, longitudinal rugulae.

Female.—Unknown.

Type-species.—*Methocha rugosa* Cameron, 1897, by present designation and by monotypy.

This peculiar and distinctive genus is still known from only a single male reported to have been captured in Ceylon. Its rarity suggests that perhaps its behavior and preference for an ecological niche may be much different from those exhibited by *Methocha*, the only other genus in the subfamily. Several species of *Methocha* subg. *Methocha* Latreille (*ichneumonides* Latreille, *bicolor* Say and several other species), at least one species of *Methocha* subg. *Drynopsis* Brues (*violaceipennis* Cameron), and at least one species of *Methocha* subg. *Andreus* Ashmead (*andrei* Arnold) have been reared from *Cicindela* larvae dwelling in burrows in the soil. The antlike *Methocha* females may be found crawling on the ground or occasionally visiting honeydew secretions on foliage near the ground, and the winged males are found on foliage or flying low over the ground. I suspect that *Karlissa* may lead an arboreal existence in the forest canopy, that the females may parasitize the larvae of arboreal, flightless tiger beetles dwelling in pre-existing burrows in branches or twigs, and that the males also usually remain in the canopy, visiting arboreal blooms for nectar or honeydew secretions on foliage. If my presentiment is correct, there would be a striking

analogue in another tiphiid subfamily, the Myzininae. The females of some of those genera are known to parasitize subterranean beetle larvae, but one genus, *Hylomesa* Krombein, has converted to an arboreal existence and parasitizes larvae of Cerambycidae in their burrows in timber.

Karlissa rugosa (Cameron), NEW COMBINATION

Figs. 1, 2

Methoca (!) *rugosa* Cameron, 1897:52-53, pl. 4, fig. 11 (♂; Ceylon).—
Bingham, 1897:54 (♂; redescription of type).

Poecilotiphia (?) *rugosa* (Cameron), Turner, 1908:131 (tentative generic assignment).

Methocha rugosa Cameron, Krombein, 1968:3 (confirmed as *Methochinae*).

This enigmatic species is still known only from the male holotype in the Rothney Collection, Hope Department of Entomology, Oxford University. The holotype bears only two labels, a small square with a pencilled "11" and Cameron's label "Methoca/rugosa/Cam. Type." It seems probable that the former label refers to the figure accompanying the original description and not to a code indicating the locality. Cameron cites no collector for the specimen. However, it may be presumed to have come from Col. Yerbury who is credited in the same paper with having collected a number of other Ceylonese species described therein.

Despite the great amount of collecting that has been done in Sri Lanka, especially since the mid-1950's, it has never been found again. One would be inclined to question the attribution of the type-locality, were it not for the fact that this strange animal has not been captured elsewhere. A possible explanation that its rarity may be due to a largely arboreal existence is discussed under the generic heading.

The holotype is in reasonably good condition except that most of the flagellar segments are missing (note Cameron's figure) as well as the terminal segment of left fore tarsus, left mid and hind tibiae and tarsi, and the right fore tarsus except for the basal segment. Some vestiture, especially upon the eyes, has been abraded, probably the result of the specimen having been preserved in formalin or some other liquid preservative when collected. It was impossible to relax it satisfactorily and I had to remove the seventh abdominal sternum and aculeus in order to extract the genitalia for study and illustration. The dissected abdominal sterna and remainder of the right antenna (removed to reveal punctation of some areas of the front and clypeus for illustration) are preserved on a card point beneath the specimen; the genitalia in glycerine are in a small plastic, rubber-stoppered vial also pinned beneath the specimen.

Male (redescribed from the holotype).—Length 15 mm, forewing 9 mm. Black, glossy; mandible, scape, fore trochanter, femur and tibia darker red

than palpi, antennal pedicel and 1st 4 flagellar segments which are lighter red; 5th flagellar segment infuscated at apex above, suggesting that missing section of antenna may be relatively dark at least on upper surface; apex of pronotum narrowly reddened as are outer and hind margins of tegula. Forewing hyaline to basal vein, the apical $\frac{1}{2}$ infuscated. Vestiture on front relatively dense, subappressed and golden, that on thorax sparse, suberect and glittering white; discal vestiture on abdomen sparse, suberect and white except apices of segments with a single row of subappressed black setae; setae on eyes short, probably dense, but now mostly abraded.

Head in frontal view with punctation and vestiture as figured (Fig. 1); clypeal keel (Fig. 1a) very compressed, relatively elongate, rounded at apex; flagellum compressed, 1st 4 segments relatively shorter and broader than in other male methochines; malar space very narrow; ocelli normal in size, arranged in a low triangle, the lateral ocellar distance $\frac{2}{3}$ the postocellar distance and $\frac{1}{2}$ the ocellocular distance; no groove behind posterior ocelli; the vertex and upper temples with relatively scattered punctures; lower temples and genae closely punctate; head behind hypostomal area transversely rugose.

Pronotum along midline 0.8 times as long as scutum, median length $\frac{2}{3}$ the anterior width, the latter about 0.7 times as wide as width at tegulae, disk anteriorly with strong ridge extending onto sides, anterior $\frac{2}{3}$ of disk and sides with close transverse rugae which become oblique posteriorly on side, posterior $\frac{1}{3}$ of dorsum smooth with scattered small punctures, the pronotal dorsum sloping gradually upward to level of scutum; scutum somewhat irregularly, transversely rugose between parapsides which extend entire length of scutum, area between parapsides and tegulae pitted; scutellum as long as scutum, a median, coarsely pitted triangular area raised above the abruptly declivous smooth sides, the short posterior section also abruptly declivous and with close, relatively small punctures; postscutellum lying below the plane of the scutum-scutellum, anteriorly on median $\frac{1}{2}$ with a narrow, deep depression, posteriorly in middle with small, close pits, laterally declivous and with a few oblique rugulae; mesopleuron anteriorly and above with a strong continuous ridge, upper $\frac{2}{3}$ and posterior $\frac{1}{3}$ coarsely pitted, more or less longitudinally on upper $\frac{2}{3}$, a deeply impressed, narrow, longitudinal, densely haired fossa on median $\frac{1}{3}$ below the upper pitted area; mesosternum slightly concave along midline and with a deep, narrow apical fossa, a few short, transverse rugulae anteriorly, punctate and pitted elsewhere, at apex with short, strong transverse carina before each mid coxa; metapleuron longitudinally rugulose; metasternum at apex with a pair of narrowly separated, short ligulate processes, each overlying the inner ventral angle of hind coxa; dorsum of propodeum flat, lower than postscutellum, a median triangular areola formed by two strong rugulae nearly joined at base and diverging toward apex, area within areola with a few irregularly

transverse rugulae, horizontal area laterad of areola with coarse rugulae forming irregular pits, the horizontal surface posteriorly with a strong, erect ruga; lateral surface of propodeum with strong, relatively close, oblique, somewhat irregular rugulae; posterior surface of propodeum abruptly declivous, with about 12 rugulae radiating outwardly from below, the median rugula the strongest.

Declivous anterior area of 1st abdominal tergum smooth, anterior $\frac{1}{2}$ of dorsal surface irregularly, longitudinally rugulose, the remainder smooth except for an apical row of small punctures and laterally with larger punctures becoming more crowded at side; 2nd through 6th terga each with a deep, curved, subbasal groove bearing close, short, longitudinal rugulae, these terga each with apical row of small punctures, smooth medially and laterally with larger punctures becoming denser toward sides; 7th tergum rounded and with scattered larger punctures, pygidial area absent; 1st sternum anteriorly with strong transverse ridge from which extends a median ridge becoming gradually weaker and ending about $\frac{3}{4}$ the length of segment, the surface elsewhere with coarse, close pits becoming more separated toward apex; 2nd sternum with large, subcontiguous punctures and an apical row of close small ones; 3rd through 6th sterna each with a deep, curved, subbasal groove, wider than those on terga, and each with close, short, longitudinal rugulae, each of these sterna with an apical row of close, small punctures, elsewhere with scattered, larger punctures which are denser anteriorly and laterally; 7th sternum with closer larger punctures, slightly notched apically in middle; punctate at base and with a lateral carina extending $\frac{2}{3}$ the distance to apex; genitalia as figured (Fig. 2).

Female.—Unknown, but undoubtedly wingless and with an antlike habitus.

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Christopher O'Toole, Hope Department of Entomology, Oxford University, England, was so kind as to loan the holotype of *Methoca rugosa* Cameron.

C. F. Jacot-Guillarmod, Albany Museum, Grahamstown, South Africa, sent me representatives of several species of *Methocha* subg. *Andreus* Ashmead.

The illustrations are by George L. Venable, Department of Entomology, Smithsonian Institution.

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